King County
Department of Natural Resources and Parks
Wastewater Treatment Division

South Plant NEWS

A newsletter updating the neighbors of the South Treatment Plant

Summer 2005

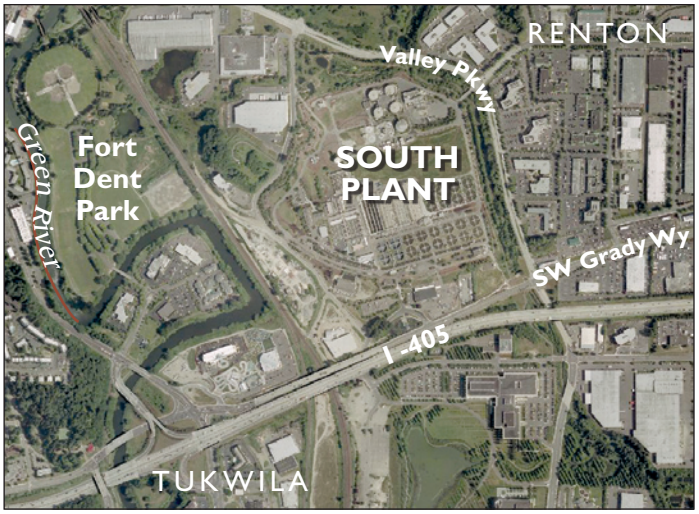
Water conservation

Reclaimed water is a way the South Treatment Plant helps to conserve water: Look inside to find tips on how you can save at home

King County's Wastewater Treatment Division has been safely using reclaimed water (water that has been treated beyond secondary standards) since 1997 at its regional treatment plants in Seattle and Renton. The South Treatment Plant produces Class A reclaimed water from April to October and distributes about 1.3 million gallons off-site during the hotter months.

About 40,000 gallons per day of South Plant's reclaimed water is used to irrigate ball fields at Fort Dent Park in Tukwila. An additional amount is used outside the plant's fence line in a wetlands nursery and plantings along Grady Way. A small portion is hauled to new planting locations by the Washington Conservation Corps, EarthCorps and King County restoration projects.

Both King County treatment plants reuse treated wastewater internally for irrigation, tank cleaning and other processes that do not need drinkable water--instead of using city water for those purposes. By using reclaimed water, South Plant saves 4 million to 5 million gallons per month of city water, enough to supply 50-75 homes.



Come help us celebrate South Plant's 40th anniversary

The 40th Anniversary Celebration for the South Treatment Plant is approaching! We will be celebrating with an open house on **Saturday, Oct. 8**, from 10 a.m. to 12:30 p.m. after our busy summer. Please join us for refreshments, tours and an opportunity to learn about our rich history of improving and protecting water quality.

Lake Washington then and now: In 1950, 60 pipes let raw sewage drain right into Lake Washington. The creation of of a regional wastewater treatment system changed all that. Today we enjoy Lake Washington's clean water as an important natural resource.

For 40 years, the regional wastewater treatment utility now operated by King County has been protecting public health and water quality at the South Treatment Plant in Renton. King County's Wastewater Treatment Division now serves 17 cities, 17 local sewer agencies and more than 1.4 million residents in King, Snohomish and Pierce counties. South Plant treats wastewater from as far north as Mill Creek in south Snohomish County to Enumclaw in south King County.

For more information, please call **206-296-8361**. The address of the plant is 1200 Monster Road S.W., Renton, WA 98055. You can find directions to the treatment plant on the website: *http://dnr.metrokc.gov/wtd/directions/#South%20Plant.*

Home Water Conservation Tips

- **Fix toilet leaks:** Check your toilets for leaks using food coloring in the tank. Wait 10 minutes to see if colored water leaks into the bowl.
- **Take a short shower--don't linger in the tub:** A bathtub holds up to 50 gallons of water. The typical shower uses less than 20 gallons. For real savings, limit your shower to five minutes.
- **Don't trash the can:** Don't use the toilet as a trash can. Each unnecessary flush wastes water.
- **Fill 'er up:** Wash only full loads of clothes and dishes. And if you can afford one, water-efficient washing machines save water and energy, and they're easier on your clothes.
- **Water wisely:** Consider letting the lawn go brown and dormant in the summer. If you do choose to water, do it in the morning and evening to avoid evaporation. Use only half an inch to an inch of water once a week. Using an empty tuna can is a great way to measure when you've reached an inch.
- **Capture some rain with rain barrels and cisterns:** Put in rain barrels this winter and capture rain for watering next summer.
- **Defy evaporation with compost and mulch:** Two to three inches of mulch in a garden acts like a sponge that helps hold moisture and improve the soil health. Dried grass clippings, shredded leaves, compost and chopped straw all are good mulches.
- **Low-flow is the way to go:** Install an ultralow-flow toilet, which conserves up to 4 gallons per flush. If you can't switch out your toilet right away, put a plastic bottle weighted with pebbles in the tank.

Biosolids program update *EMS Certification: third*

Biosolids are the nutrient-rich organic byproduct of wastewater treatment that the county recycles as a soil amendment. Recycling this natural resource is a great way to return valuable nutrients to the soil.

King County uses its biosolids to enhance soils of agricultural land in Eastern Washington and forests in Western Washington. Some of our biosolids are mixed with sawdust and composted for use as a garden soil amendment.

King County's Environmental Management System (EMS) for biosolids became a certified program in July 2004 by the National Biosolids Partnership. King County was the third wastewater agency in the nation to earn the prestigious Certificate of Achievement following a rigorous, independent third-party verification audit of its biosolids EMS.

The county's EMS goes beyond minimum regulatory requirements. It documents, monitors and optimizes the management of wastewater solids and biosolids to meet regulations that protect public health and the environment. It also addresses issues such as public acceptance, odor, noise and biosolids quality.

The staff at King County is committed to making sure verification is not the end but the beginning of a continuously improving biosolids management system.

New centrifuges at South Plant offer greater cost control

In early 2005, South Plant replaced its old belt filter presses with centrifuges for dewatering biosolids. The new centrifuges remove an additional 15-25 percent of water from the biosolids, leading to significant transportation cost savings. The drier biosolids also reduces the number of truck trips as well as air emissions.

Energy Management at South Plant: moving toward a greener, more self-reliant facility

King County uses innovative and efficient technologies to generate electricity from digester gas (the gas created through the solids digestion process).

Fuel Cell

Fuel Cell Energy Inc. (FCE), in cooperation with the U.S. Environmental Protection Agency and King County, has installed a one-megawatt molten carbonate fuel cell (MCFC) power plant at the South Plant. Using this power plant–the largest of its kind in the world–is a two-year demonstration project to evaluate performance using digester gas.

The MCFC will consume 20 percent of South Plant's digester gas to produce 15 percent of its electrical needs and half of its heating needs. One megawatt is enough to power 800 households.

"King County is searching for innovative ways to provide electricity to its wastewater plants," said Wastewater Treatment Division Director Don Theiler. "This project moves the county into the 'green' power arena in at least three ways. It uses renewable fuel--wastewater digester gas. It produces power and heat efficiently. And it emits far fewer pollutants than combustion engines."

Besides being efficient, the power plant also produces little noise and odor. The demonstration facility began operating in April 2004. If it's successful, similar facilities could be installed at wastewater treatment plants around the country, especially in areas with air quality issues.

The demonstration facility has already earned the National Award for Excellence in Research and Technology from the National Association of Clean Water Agencies. For more information, visit: *http://dnr.metrokc.gov/WTD/fuelcell.*

Cogeneration

An 8.5-megawatt cogeneration facility is now being installed at South Plant to convert digester gas and natural gas into electricity and heat for plant use. It will produce enough electricity to power South Plant nearly 80 percent of the time.

The facility will consist of two 3.5-megawatt turbines (aka jet engines), two steam boilers and a 1.5-megawatt steam generator. The turbines will consume "scrubbed" or cleaned digester gas and natural gas to produce electricity. Heat produced by the turbines may produce 1.5-megawatt of additional electricity through a steam generator as well as hot water for South Plant heating needs.

This facility will be enclosed in a building designed to minimize noise. Air control equipment will be installed on the turbines to reduce emissions.

The solids digestion process at South Plant now produces enough gas to power the fuel cell and one gas turbine. So a gas line from Puget Sound Energy

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in country to be certified!

South Plant has effectively used the belt filter presses since the mid-1980s. However, the plant needed more dewatering capacity by 2005. A decision to switch to centrifuges helped to keep down replacement costs while providing new equipment to make drier biosolids.

"So far it's been a success," said Sergio Salinas, a mechanic at South Plant. "One of the three centrifuges has been able to replace four of the eight presses."

The transition from presses to centrifuges was a challenge because the dewatering process could be shut down for only brief periods.

Kudos to the maintenance and operations staff, as well as the contractors, for making this happen. For example, staff had only 10 days to clean and disconnect an old press before the contractor lifted it out of the dewatering building through a skylight. The new dewatering building should also do a better job of containing and treating odors released in the dewatering process.

King County
Department of Natural Resources and Parks
Wastewater Treatment Division
King Street Center
KSC-NR-0503, 201 S. Jackson St.
Seattle, WA 98104-3855

Tours and brochures are available

Want to learn more about what happens when you flush?

To schedule a tour or to ask for a brochure, please call 206-296-8286.

Alternative formats available

206-684-1280 or TTY Relay: 711

http://dnr.metrokc.gov/wtd/

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Odor Control at South Plant *The "sniff" of things to come*

Nuisance odors are an unpleasant byproduct of wastewater treatment. So controlling odor is an essential part of the Wastewater Treatment Division's policy of being a good neighbor.

South Plant was built in 1965 without much odor control because it had few neighbors. Over the decades, South Plant has grown considerably larger while our neighbors have grown considerably closer.

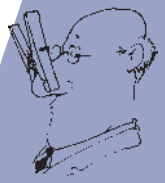
To tackle odor concerns, workers at South Plant have installed many technologies and set up many processes over the years to minimize the neighborhood's exposure to odors. These improvements include:

- covers on process tanks and channels to contain odors.
- chemical addition to the wastewater to inhibit odor production.
- equipment enclosed in buildings and tunnels.
- odor removal from air emissions using various methods--dry activated-carbon beds, wet chemical scrubbers, or a soil biofilter.

Knowing there was more to do, King County passed the Odor Prevention Policy in 2003. It established a strategy for investing in more odor control facilities at South Plant. One stage of that strategy will be finished in early 2007 when South Plant starts operating additional odor removal facilities on one of its more odorous processes–the aeration tanks.

Later odor assessments will determine what further projects are needed.

The Wastewater Treatment Division makes every effort to respond to odor complaints promptly and effectively. To reach the South Plant Odor Control Hotline 24 hours a day, call 206-684-2404. For more information, visit *http://dnr.metrokc.gov/WTD/odorcontrol* on the Web.



Energy *from Page 3*

is being installed to provide the additional gas needed to run the second turbine.

South Plant can sell any excess electricity it generates to Puget Sound Energy for use by homes and businesses around King County. The cogeneration facility will be online in fall 2005.